What is claimed is:

1. A solid oxide fuel cell comprising an air electrode layer, a fuel electrode layer, and a solid electrolyte layer interposed between said air electrode layer and said fuel electrode layer, wherein

said solid electrolyte layer comprises a first electrolyte layer which is made of a lanthanide-gallate oxide and has a first ionic transference number and a first total electric conductivity, and a second electrolyte layer which is made of a lanthanide-gallate oxide and has a second ionic transference number smaller than said first ionic transference number and a second total electric conductivity larger than said first total electric conductivity;

said air electrode layer is laminated onto one side of said solid electrolyte layer; and

said fuel electrode layer is laminated onto the other side of said solid electrolyte layer.

2. A solid oxide fuel cell according to Claim 1 wherein:

said first and second electrolyte layers are made of a compound represented by general formula (1): $Ln_{1-a}A_aGa_{1-(b+c)}B_bCo_cO_3$, wherein A is one or more kinds of Sr, Ca, and Ba; B is one or more kinds of Mg, Al, and In; a is in the range from 0.05 to 0.3; b is in the range from 0 to 0.3; c is in the range from 0 to 0.2; and (b+c) is in the range from 0.025 to 0.3; and

an amount of Co in said first electrolyte layer is 0 or 80 % or less with respect to an amount of Co in said second electrolyte layer.

3. A solid oxide fuel cell according to Claim 1, wherein said lanthanide-gallate oxide is a lanthanum-gallate oxide.

4. A solid oxide fuel cell according to Claim 2 wherein:

said lanthanum-gallate oxide is a compound represented by general formula (1): $La_{1-a}A_aGa_{1-(b+c)}B_bCo_cO_3$, wherein A is one or more kinds of Sr, Ca, and Ba; B is one or more kinds of Mg, Al, and In; a is in the range from 0.05 to 0.3; b is in the range from 0 to 0.3; c is in the range from 0 to 0.2; and (b+c) is in the range from 0.025 to 0.3; and

an amount of Co in said first electrolyte layer is 0 or 80 % or less with respect to an amount of Co in said second electrolyte layer.

5. A solid oxide fuel cell according to Claim 4, wherein

a thickness of said solid electrolyte layer comprising said first and second electrolyte layers is in a range from 1 to 500 μ m; and

a percentage of said thickness of said first electrolyte layer with respect to said thickness of said solid electrolyte layer is in a range from 1 to 20 %.

6. A solid oxide fuel cell according to Claim 4, wherein said amount of Co decreases gradually from said second electrolyte layer to said first electrolyte layer in the vicinity of the interface between said first electrolyte layer and said second electrolyte layer.